

A REVIEW OF THE OPHIDIID FISH GENUS *SIREMBO* WITH A NEW SPECIES
FROM AUSTRALIA

DANIEL M. COHEN
Los Angeles County Museum of Natural History
900 Exposition Blvd., Los Angeles, CA 90007, USA
and
C. RICHARD ROBINS
Rosensteil School of Marine and Atmospheric Sciences
University of Miami, Miami, FL 33149, USA

ABSTRACT

A revised diagnosis is presented for the Indo-West Pacific fish genus *Sirembo*, and three species are recognised. *S. metachroma* n.sp. from Queensland and Western Australia has about 12 oblique scale rows between the dorsal fin and the lateral line and has the lateral line marked by a bold to faint brown line. The previously unreported young stage of the Australian ophidiid *Dannevigia tusca* is superficially similar in color pattern to *Sirembo metachroma*. *S. jerdoni* (junior syn. *Umalius philippinus*) has been caught from the E. China Sea to the Red Sea (including Western Australia) and has 6–7 oblique scale rows between the lateral line and the dorsal fin and three or four broad, oblique bands on the head and anterior part of the body. *S. imberbis* (junior syn. *S. everriculi*) found from Japan to Western Australia (including Queensland) has 6–8 oblique scale rows between the lateral line and dorsal fin and one or more rows of spots or horizontal bands along the body.

INTRODUCTION

Fishes assigned to the Indo-West Pacific ophidiid genus *Sirembo* may be divided into three groups based on well-marked colour patterns, which we treat as species or possible species groups. In this paper, we describe one new species and present synonymies for the other two, as well as discussing variation.

Sirembo Bleeker

The following diagnosis is an emendation of the one presented by Cohen and Nielsen (1978). Pelvic fins immediately adjacent to each other, each with a single ray inserted beneath or immediately behind the level of the eye. No spines on preopercle. Spine on opercle short, not reaching rear margin of opercle. Eyes well developed. Deepest part of fish well posterior to head. Developed gill rakers on first arch 4. Pseudobranch large, with 15–28 or more filaments. A single median basibranchial tooth patch. Abdominal vertebral centra 13–15. Developed gill rakers 0+1+3. Branchial cavity and palate dusky to quite dark.

KEY TO SPECIES OF *SIREMBO*

1. Three or four broad oblique bands on head and anterior part of body, which connect over predorsal and head to similar marks on opposite side*S. jerdoni*
No oblique bands on fore part of body.....2
2. Ground color light brown or yellow-brown. Lateral line marked by a bold to faint brown line*S. metachroma*
Body usually with one or more horizontal stripes or rows of blotches.....*S. imberbis*

Sirembo metachroma sp. nov.

Plate 1A, 1B

MATERIAL EXAMINED

HOLOTYPE: QM No. 13005; 171 mm SL; Queensland, 7 miles NW off Cape Moreton, 60 fms; 27 Feb. 1975; coll. R.J. McKay.

PARATYPES: QM 1.19500 (4 spec.), data as for holotype; WAM P25739-005 (1 spec.), data as for holotype.

NON-TYPE: All from Western Australia; WAM P22339 (1 spec.), Cape Cuvier; WAM 25836-003 (1

spec.), Off Bernier Id., USNM 226483 (1 spec.), 22°52'S, 113°26'E, 136-178 m.

DIAGNOSIS

Ground colour pale brown or yellow-brown. Lateral line marked by a dark-brown line or a pale line. Scale rows between lateral line and dorsal fin about 12. Anal fin rays 72-74. Abdominal centra 14 or 15.

DESCRIPTION

Counts are summarized in Table 1, measurements in Table 2.

Body compressed, relatively long, but not attenuate. Head about one-half preanal length. Snout bluntly rounded, lower jaw included. Upper jaw terminating near level of rear margin of eye. Rear of maxillary expanded, partly sheathed dorsally. Eye with an elliptical spectacle, about equal in horizontal diameter to the snout length. Posterior nostril a simple pore close to mid-level of anterior margin of eye; anterior nostril with a raised rim, located near mid-length of snout.

Small cycloid scales cover the entire body. The median fins are covered with thick, scaleless skin. The pectoral has a fleshy, scale-covered patch near its base. There are at least 12 rows of scales in an oblique line between the dorsal fin and the lateral line and about 115-135 rows of scales along the side of the body (difficult to count at rear of tail).

Head pores present along the supraorbital, infra-orbital, lateral, and preoperculo-mandibular canal series; consistent counts not possible. Second pore in the mandibular series near lower jaw tip a larger, median, apparently fused structure. Lips, snout tip and lower jaw tip covered with densely distributed papillae.

Branchiostegal rays 8. Granular teeth in bands on dentary and palatines. Premaxillary with somewhat larger teeth along outer margins. Vomerine tooth patch with a rounded anterior margin and flaring arms.

Pectoral fin broadly rounded, reaching about one-half the distance from its own origin to anal fin origin. Ventral fins originate close to level of rear margin of eye and of upper jaw.

The color pattern is different in the five smaller specimens from Queensland and the three larger ones from Western Australia. The smaller fish have a light brownish-yellow ground color, beneath which lie three or four very faint, darker transverse areas. The lateral line is marked by a narrow, dark brown line that stops short of the end of the tail section of the body. In the largest of the small specimens (holotype, 171 mm), the

lateral line alternates very dark segments over the darker, transverse areas with paler segments. Median fins darker, set off by narrow pale margins; three or four darker blotches along the dorsal. Bottom of head, pelvics and snout tip pale. Western Australian specimens with a light-brown ground color over faint remnants of slightly darker transverse areas. Lateral line marked by a faint brown line. A bold dark band extends obliquely across the cheek from the rear margin of the preopercle to the posteroventral segment of the eye; a narrow extension outlines the ventral margin of the eye. Median fins about same color as body, with remnants of narrow pale margin. Dorsal fin with two dark blotches. Belly, bottom of head, and snout tip pale. In fish from both regions, the branchial chamber is dusky, and the entire palate is dark brown and contrasts with the pale area distal to the palatines and vomer.

DISTRIBUTION AND VARIATION

Known from five Queensland specimens (SL 134-171 mm) taken at one locality, which have the color pattern shown in Fig. 1A and three Western Australian specimens (SL 236-317 mm) taken at three localities, and with the color pattern shown in Fig. 1B and described above. In addition to having a different color pattern, the Queensland fish have smaller heads, shorter jaws, narrower maxillaries, slenderer bodies and shorter ventral fins (data for all of these are summarized in Table 2). We interpret these differences in color pattern and proportions as size-related and consider the two samples conspecific. Only the study of specimens intermediate in size will verify our interpretation. We note, however, that in the largest Queensland fish, segments of the darkbrown line of pigment over the lateral line are slightly faded. Perhaps this condition represents the onset of color pattern transition.

We call attention to another difference, not size related. Western Australian specimens have 72 anal fin rays; Queensland ones have 73 or 74. The sample size is too small to recognize separate species on the basis of the character.

ETYMOLOGY

The name *metachroma* is taken from the Greek *meta*, implying change, and *chroma*, color, in reference to the apparent ontogenetic change in color pattern in this species.

SIMILARITY IN COLOR PATTERN OF *S. METACHROMA* AND YOUNG *DANNEVIGIA TUSCA*

A related genus and species, *Dannevigia tusca*, which is caught along the southern shores of

TABLE 1: SELECTED COUNTS FOR THREE SPECIES OF *SIREMBO*.

	<i>imberbis</i>				<i>metachroma</i>		<i>jerdoni</i>			
	Jap.	Phil.	Qld.	W.A.	Qld.	W.A.	Phil.	Thai.	Red Sea	W.A.
Dorsal fin rays										
89	1	2					1			
90	1	2		1			—			
91	1	2	1	—			1			
92	1	2	1	—			6			
93	1	2	1	1			—		2	
94			1		1		3	1		
95			1		—		1			
96			—		—					
97			1		2	3				
98					—	1				
99					—					
100					1					
Anal fin rays										
64							3			
65							2			
66							2	1	1	
67		2					3		1	
68	1	1					2			
69	—	6								
70	3			1						
71	1		3	—						
72			2	1		4				
73			1			1				
74						3				
Pectoral fin rays										
21			1							
22	3	1	—				5			
23	2	1	2			1	4		1	
24	1	2	1	1		3	2		1	1
25		2	2	1		1	2			
Pseudobranch filaments										
15		1								
16		—								
17		2	2							
18	1	—	—	1						
19		—	—							
20		1	1							
21		—	2			2		2		1
22		—				—		1		
23		2				1		2		
24						1	2	1		
25						1	—	1		
26							2	1	1	1

TABLE 2: PROPORTIONS, EXPRESSED AS PERCENT OF STANDARD LENGTH, FOR THREE SPECIES OF *SIREMBO*.

	Standard Length mm	Head Length N, \bar{x} (Range)	Snout Length	Eye Diameter	Jaw Length
<i>imberbis</i>					
Japan	126-164	5, 20.0(19.0-20.8)	5, 4.1(3.5-4.4)	5, 5.9(5.2-6.1)	5, 9.7(9.3-10.2)
Philippines	79.4-200	6, 22.8(21.7-24.0)	6, 4.6(4.0-5.3)	6, 6.2(5.7-6.7)	6, 11.2(10.6-12.0)
Queensland	143-169	5, 20.7(19.9-21.7)	4, 4.8(3.8-5.3)	5, 5.4(4.9-5.8)	5, 9.9(9.1-10.8)
W.A.	158-167	2, 21.9, 22.5	2, 4.6, 5.3	2, 5.3, 5.7	2, 10.1, 11.2
<i>metachroma</i>					
Queensland	134-171	4, 22.5(22.1-22.8)	4, 5.9(5.3-6.9)	4, 5.6(5.4-6.0)	4, 11.3(10.8-11.5)
W.A.	160	1, 23.4	1, 5.8	1, 6.1	1, 11.2
W.A.	236-317	3, 24.7 (24.4-24.9)	3, 6.5(6.0-7.4)	3, 5.6(5.6-5.7)	3, 12.6(12.5-12.7)
<i>jerdoni</i>					
Philippines	101-143	11, 22.0(20.9-23.4)	11, 4.8(3.8-5.4)	11, 5.8(4.9-6.3)	11, 10.7(9.5-11.9)
Red Sea	139-167	2, 22.9, 23.2	2, 4.7, 5.0	2, 5.3, 5.9	2, 10.9, 11.4
	Maxillary Width	Predorsal Length	Preal Length	Body Depth at Vent	
<i>imberbis</i>					
Japan	2, 3.3, 3.5	5, 21.6(19.7-23.9)	3, 43.3(41.3-45.1)	4, 14.9(13.7-16.6)	
Philippines	6, 4.3(3.9-4.9)	6, 24.8(23.9-27.0)	6, 45.4(43.6-49.1)	6, 16.1(14.2-17.2)	
Queensland	5, 3.7(3.6-4.0)	5, 23.0(22.0-24.6)	4, 44.4(43.0-46.6)	5, 16.3(15.3-17.1)	
W.A.	2, 4.3, 4.4	2, 24.1, 25.6	2, 46.0, 47.0	2, 16.9, 18.5	
<i>metachroma</i>					
Queensland	4, 4.0(3.9-4.1)	4, 23.1(22.2-23.7)	4, 44.4(43.6-45.2)	4, 18.5(17.1-20.3)	
W.A.	1, 4.5	1, 22.0	1, 45.7	1, 18.2	
W.A.	3, 4.9(4.8-5.1)	3, 24.2(22.3-25.2)	3, 46.2(43.5-49.2)	3, 22.1(20.2-24.4)	
<i>jerdoni</i>					
Philippines	10, 4.1(3.5-4.6)	11, 22.4(19.3-23.7)	11, 46.0(43.5-50.1)	10, 17.5(15.5-19.9)	
Red Sea	—	2, 22.0, 23.2	2, 44.9, 46.9	2, 16.5, 16.8	
	Pectoral Fin Length	Ventral Fin Length			
<i>imberbis</i>					
Japan	5, 12.4(12.0-12.9)	5, 13.1(11.5-14.0)			
Philippines	6, 11.6(9.5-14.4)	5, 14.7(12.0-17.3)			
Queensland	4, 11.9(10.8-12.4)	5, 12.9(12.2-14.7)			
W.A.	2, 11.2, 12.3	2, 11.5, 15.4			
<i>metachroma</i>					
Queensland	4, 11.4(10.7-12.1)	4, 14.7(14.2-15.3)			
W.A.	1, 11.1	1, 14.4			
W.A.	3, 11.2(11.1-11.4)	3, 16.6(15.5-17.5)			
<i>jerdoni</i>					
Philippines	11, 11.2(9.7-12.6)	11, 14.5(12.2-16.7)			
Red Sea	2, 11.2, 11.2	2, 12.0, 13.2			

Australia and grows large enough to be landed commercially, has a previously unreported young stage with a color pattern that might be confused with Western Australian *S. metachroma*. The ground color is pale brown, and there are several indistinct transverse dusky bars across the body and dark blotches on the dorsal fin, and one on the anal fin as well (Plate 1C). Several obvious ways in which the two species differ are the presence in *Dannevigia* of two rays rather than one in each ventral fin and of short spines at the lower angle of the preopercle rather than no spines, and of the absence of an oblique band across the cheek and of a prominent median-fused pore near the tip of the lower jaw. The above account is based on USNM 227946, 205 mm SL, 33°38'S, 125°38'E, 114–120 m. The statement by Cohen and Nielsen (1978) that *Dannevigia* has, 'No dark spots on dorsal fin' applies to adults only.

***Sirembo imberbis* (Temminck and Schlegel)**

Plate 2A

Brotula imberbis Temminck and Schlegel, 1846, p. 253 (original description, Japan).

Sirembo imberbis; Bleeker, 1858, p. 22 (new combination).

Brotella maculata Kaup, 1858, p. 92 (*nomen novum* for *Brotula imberbis* Temminck and Schlegel).

Sirembo everriculi Whitley, 1936, p. 47 (original description, Queensland).

MATERIAL EXAMINED

JAPAN: RNHL 3469a (Holotype), RNHL 3469b–c (2 Paratypes), Bay of Oomura; USNM 174750 (2 spec.), Wakanoura; USNM 71220 (1 spec.), Nagasaki market. PHILIPPINES: USNM 99060 (1 spec.), Tacbus Pt.; USNM 226477 (1 spec.), Visayan Sea, vicinity of Samar and Leyte; USNM 226485 (1 spec.), 11°38'N, 123°53'E, 90 m; USNM 226484 (23 spec.), 11°29'N, 123°46'E, 70 m. QUEENSLAND: QM I.16390 (4 spec.), Torres Straits near Keats Islet; QM 12546 (1 spec.), off Cairns; QM I.16475 (1 spec.), Torres Straits N of Sand Cay; QM I.16391 (1 spec.), Torres Straight near Aureed Island; AM I.A. 6564 (Holotype of *S. everriculi*), off Shaw Island, Cumberland Group, N Queensland, 10 fms. WESTERN AUSTRALIA: WAM P26294–005 (1 spec.), 18°05'S, 119°45'E; USNM 226479 (1 spec.), 26°37'S, 112°42'E, 170–175 m; CSIRO uncat. (1 spec.), 19°44'S, 116°E, 100 m.

DIAGNOSIS

Body with one or more rows of spots or horizontal stripes (sometimes faded). Oblique scale rows between lateral line and dorsal fin 6–8. Anal fin rays 67–73. Abdominal centra 13.

DESCRIPTION

Counts are summarized in Table 1, measurements in Table 2. About 80–95 rows of

scales along the side of the body (difficult to count along rear of tail).

Branchiostegal rays 7 (4 specimens) or 8 (8 specimens). Premaxillary teeth evenly granular, outer series not enlarged. Dentition otherwise similar to that of *S. metachroma*.

The color pattern is variable and apparently fades readily, even in specimens that are not abraded; however, it may be best characterized as having one or more horizontal rows of dusky blotches along the side, the most dorsal of which, immediately beneath the dorsal fin, is in some fused into a poorly defined stripe. The anal fin usually bears a dark stripe along all or part of its length. The dorsal fin carries a series of blotches which may be more or less coalesced. Variation in color pattern seems not to be co-ordinated with size or geographical distribution. The branchial chamber and the rear (only) of the palate are dusky.

DISTRIBUTION AND VARIATION

S. imberbis is apparently widely distributed in the tropical western Pacific from Japan, the East China Sea, the Philippines, Queensland (as *S. everriculi*), and Western Australia (new record). Measurements and counts presented in Tables 1 and 2, which are based on rather small samples, show differences between Philippine and Queensland samples in anal fin ray counts, head length, eye diameter, and jaw length, Japanese and Philippine fishes differ in jaw length and predorsal length. On the basis of our limited material, however, there is insufficient reason for recognizing more than a single species.

***Sirembo jerdoni* (Day)**

Plate 2B

Brotula jerdoni Day, 1888, p. 804 (original description, Madras).

Sirembo imberbis; Rahimullah (not Temminck and Schlegel), 1943, p. 55 (misident.).

Sirembo jerdoni; Menon and Rama Rao, 1970, p. 47 (new combination).

Umalius philippinus Herre and Herald, 1951, p. 312 (original description, Philippines).

Umalius heraldi Herre, 1953, p. 818 (new name proposed for misident. of this species as *Lepophidium marmoratum* by Umali, 1935).

Sirembo philippinus; Cohen and Nielson, 1978, p. 20 (new combination).

MATERIAL EXAMINED

PHILIPPINES: USNM 22648 (8 spec.), 11°29'N, 123°46'E, 70 m; USNM 112107 (holotype of *Umalius philippinus*), Manila market, USNM 226478 (1 spec.), 11°28'N, 123°24'E; USNM 226480 (3 spec.), 11°38'N, 123°59'E, 80 m; USNM 226481 (2 spec.), 11°38'N,

123°56'E, 75 m. WESTERN AUSTRALIA: USNM 226482 (1 spec.), 19°30'S, 116°34'E, 90-99 m; CSIRO uncat. (1 spec.), 19°44'S, 116°38'E, 57-60 m, GULF OF THAILAND; CAS uncat. (1 spec.), Naga stat. 60-340. RED SEA: USNM 216444 (1 spec.), Gulf of Suez; MNHN 1966-466 (1 spec.), Gulf of Suez.

DIAGNOSIS

Three or four broad, oblique bands on the head and anterior part of the body; bands horizontal posteriorly. Scale rows between lateral line and dorsal fin 6 or 7. Anal fin rays 64-68.

DESCRIPTION

Counts are summarized in Table 1, measurements in Table 2. About 80-95 rows of scales along side of body (difficult to count along rear of tail).

Branchiostegal rays 7 (1 specimen) or 8 (8 specimens). Premaxillary teeth slightly larger along outer margin of band. Vomerine tooth patch triangular.

The color pattern is highly distinctive, and even though it tends to fade, the anterior oblique bands that meet over the top of the head are unique and readily perceived. Several dark blotches on the dorsal fin and dark bands on the rear of the dorsal fin and on the anal fin. Good illustrations have been published by Herre and Herald (1951), Menon and Rama Rao (1970), and Visweswara Rao (1972). The branchial chamber is dusky, as is the entire palate posterior to the head of the vomer.

DISCUSSION

Although Day's original description of *S. jerdoni* was based on an unpublished illustration by Jerdon rather than on a specimen, the written description of the color pattern leaves no doubt as to the identity of specimens of this species, no matter what name by which they are called. The dorsal and anal ray counts of 126 and 95 respectively given in the original description are far higher than those of any known *Sirembo*. Inasmuch as they were taken from an illustration, we consider them to be incorrect.

DISTRIBUTION AND VARIATION

S. jerdoni is known from the East China Sea, the Philippines, Western Australia (new record), the Gulf of Thailand (new record), the Bay of Bengal, and the Red Sea (new record). Although our samples are limited, we find no reason to recognize more than a single species.

ACKNOWLEDGEMENTS

We thank all of the following for the loan or gift of specimens or for help in various other ways. Australian Museum (AM), J. Paxton; California Academy of Sciences (CAS), P. Sonoda; CSIRO, P. Kailola; Museum National d'Histoire Naturelle (MNHN), M.L. Bauchot; Queensland Museum (QM), R.J. McKay; Rijksmuseum van Natuurlijke Historie, Leiden (RNHL), M. Boeseman; U.S. National Museum of Natural History (USNM), L. Knapp; Western Australian Museum (WAM), G. Allen, B. Hutchins. We are particularly grateful to J. Russo for the photographs illustrating this paper.

LITERATURE CITED

- BLIECKER, P., 1858. Vierde bijdrage tot de kennis der ichthyologische fauna van Japan. *Act. Soc. Sci. Indo-Neerlandicae*, 3: 1-46.
- COHEN, D.M. and NIELSEN, J.G., 1978. Guide to the identification of genera of the fish order Ophidiiformes with a tentative classification of the order. *U.S. Dept. Commerce, NOAA Tech. Rept., NMFS Circ.* 417: 1-72.
- DAY, F., 1888. Fishes of India. Suppl. (London).
- HERRE, A.W.C.T., 1953. Checklist of Philippine fishes. *U.S. Dept. Interior, Fish and Wildlife Service, Res. Rept.*, 20: 1-977.
- HERRE, A.W.C.T. and HERALD, E.S., 1951. Noteworthy additions to the Philippine fish fauna with descriptions of a new genus and species. *Philip. J. Sci.*, 79: 309-89.
- KAUP, J., 1858. Uebersicht der Familie Gadidae. *Arch. Naturgesch.*, 24: 85-93.
- MENON, A.G.K. and RAMA RAO, K.V., 1970. Systematic position of *Brotula jerdoni* Day, a shallow water brotulid fish from the Bay of Bengal. *J. Zool. Soc. India*, 22: 47-50.
- RAHIMULLAH, M., 1943. Report on the occurrence of *Sirembo imberbis* Tem. and Schl. from Indian waters together with a note on its pyloric caeca. *Curr. Sci.*, 12: 55-6.
- TEMINCK, C.J. and SCHLEGEL, H., 1846. Pisces. In P.F. von Siebold (ed.), *Fauna Japonica*, pt. 5: 173-269.
- UMALI, A.F., 1935. Little known fishes from the Philippines. *Philip. J. Sci.*, 56: 319-25.
- VISWESWARA RAO, V., 1972. A redescription of *Sirembo jerdoni* (Day): (Pisces: BROTULIDAE). *J. Bomb. Nat. Hist. Soc.*, 67: 114-7.
- WHITLEY, G.P., 1936. More ichthyological miscellanea. *Mem. Qd Mus.*, 11: 23-51.

PLATE I

- A. *Sirembo metachroma*, QM I.19500, Paratype, 160 mm SL.
- B. *S. metachroma*, WAM P22339, 255 mm SL.
- C. *Dannevigia tusca*, USNM 227946, 205 mm SL.

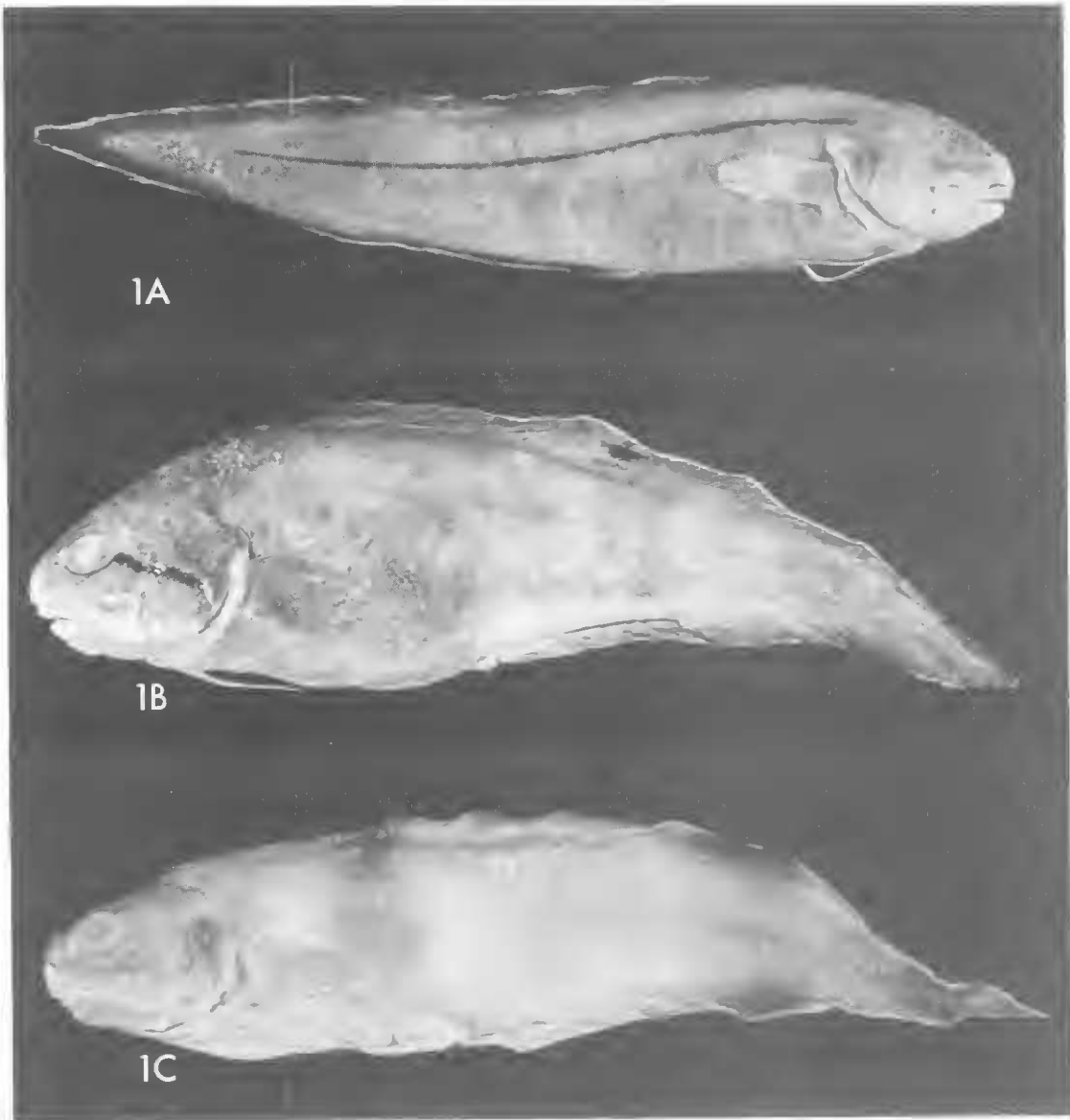
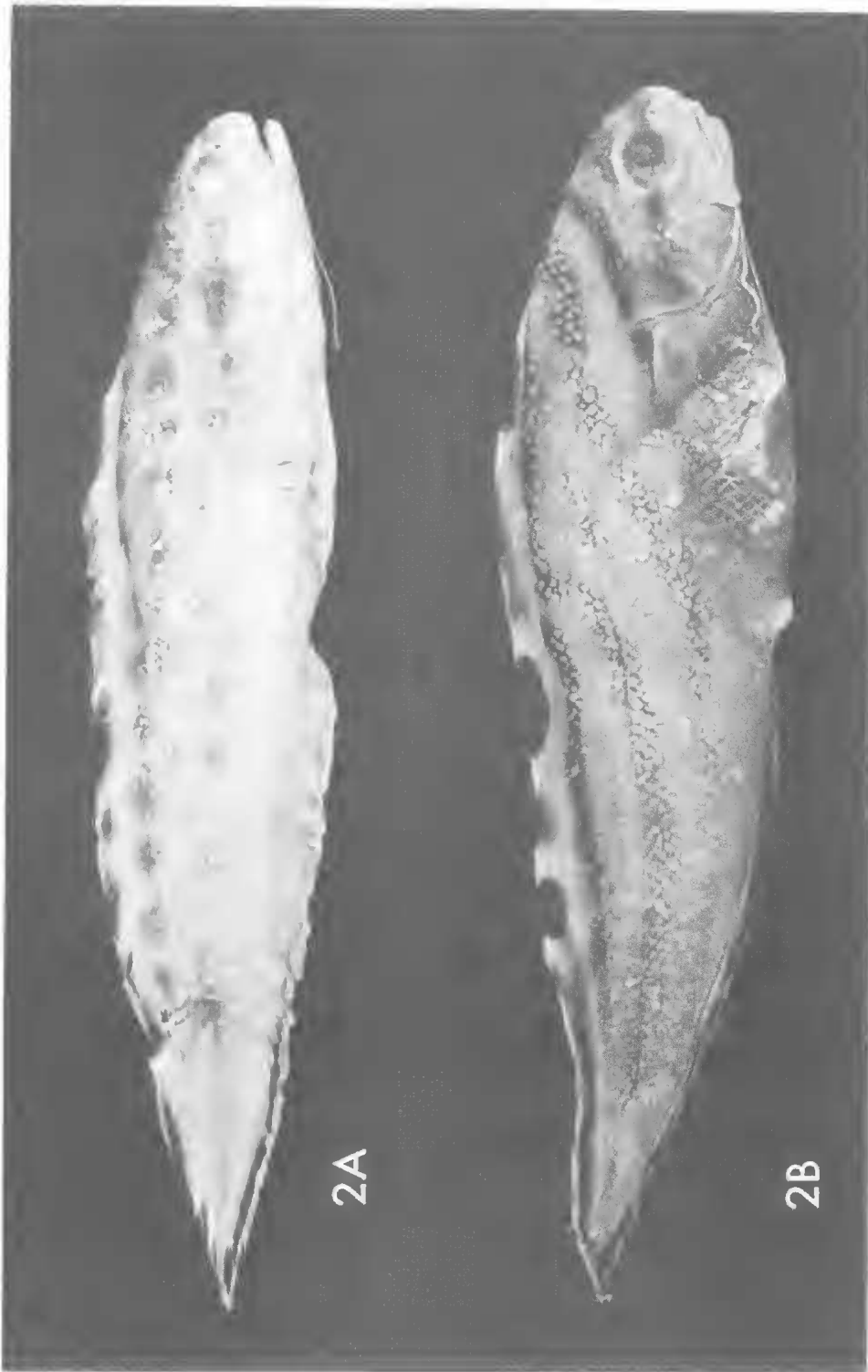


PLATE 2

- A.** *Sirembo imberbis*, WAM P26294-005, 167 mm SL.
B. *Sirembo jerdoni*, USNM P226486, 130 mm SL.



MEMOIRS OF THE QUEENSLAND MUSEUM

BRISBANE

© Queensland Museum
PO Box 3300, South Brisbane 4101, Australia
Phone 06 7 3840 7555
Fax 06 7 3846 1226
Email qmlib@qm.qld.gov.au
Website www.qm.qld.gov.au

National Library of Australia card number
ISSN 0079-8835

NOTE

Papers published in this volume and in all previous volumes of the *Memoirs of the Queensland Museum* may be reproduced for scientific research, individual study or other educational purposes. Properly acknowledged quotations may be made but queries regarding the republication of any papers should be addressed to the Editor in Chief. Copies of the journal can be purchased from the Queensland Museum Shop.

A Guide to Authors is displayed at the Queensland Museum web site

A Queensland Government Project
Typeset at the Queensland Museum